Assignment 9

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Questions:

1. Streaming video systems can be classified into three categories. Name and briefly describe each of these categories.

* **UDP streaming**: “the server transmits video at a rate that matches the client’s video consumption rate by clocking out the video chunks over UDP at a steady rate. UDP streaming typically uses a small client-side buffer big enough to hold less than a second of video”.
* **HTTP streaming**: “the video is simply stored in an HTTP server as an ordinary file with a specific URL.”
* **Adaptive HTTP streaming**: “Dynamic Adaptive Streaming over HTTP (DASH), the video is encoded into several different version, with each version having a different bit rate and a different quality level.

1. List three disadvantages of UDP streaming

* Due to the unpredictable and varying amount of available bandwidth between server and client, constant-rate UDP streaming can fail to provide continuous playout.
* It requires a media control server , such as an RTSP server to process client-to-server interactivity requests and to track client state for each ongoing client session.
* Many firewalls are configured to block UDP traffic, preventing the users behind these firewalls from receiving UDP video.

1. What is a packet that is received after its scheduled playout time considered lost?

* “Packets that arrive after their scheduled playout time are discarded and considered lost”. “A packet is lost either if it never arrives at the receiver or if it arrives after its scheduled playout time” so it can not be played out.

4. How are different RTP streams in different sessions identified by a receiver? How are

different streams from with the same session identified?

in different sessions, a receiver identifies different RTP streams using multicast addresses.

With the same session, the SSRC (Synchronization source identifier) field identifies the source of the RTP stream. It is not the IP address of the sender, but it is a number that the source assigns randomly when the new stream is started.

5. What is the role of a SIP registrar? How is the role of SIP registrar different from that of a home agent in Mobile IP?

“Every SIP user has an associated registrar. Whenever a user launches an SIP application on a device, the application sends an SIP register message to the registrar, informing the registrar of its current IP address. A user’s registrar keeps track of the user’s current IP address. Whenever the user switches to a new SIP device, the new device sends a new register message, indicating the new IP address.”

So there is no different, it plays the same role of the home agent in Mobile IP.

*Kurose Ross, Computer Networking, ch. 9*